

**Measuring early childhood health: A composite index comparing Colombian departments**Ana M. Osorio¹, Catalina Bolancé¹¹ Econometrics, University of Barcelona, Barcelona, SPAINContact: anaosorio@ub.edu

Objetivos (Objectives): The aim of this paper is to present a description of early childhood health in Colombian departments (administrative subdivisions) through the construction of a composite indicator of early childhood health. In recent years, there has been growing interest in composite indicators as an efficient tool of analysis and a way to prioritize policies. These indicators not only permit simplifying complex or multi-dimensional phenomena, but also facilitate measuring, visualizing, monitoring and comparing a country's performance in particular issues. Our indicator permits ranking departments and analyzing differences in child health across Colombian regions.

Metodologia (Methodology): We used data collected from the Colombian Demographic and Health Survey for 32 departments and the capital city, Bogotá, in 2005 and 2010. The variables included in the index measure three dimensions related to early childhood health: health status, determinants of health before and during birth and the health system. We compute the index using three statistical multivariate methods that allow us include categorical variables: PCA using binary variables, PCA using polychoric correlations and Metric Multidimensional Scaling. After selecting the best method, the one that estimated a greater proportion of the explained variance, we selected the principal components in order to construct the health index. The index was computed using a weighted average of the retained components. In addition, a hierarchical cluster analysis was carried out in order to group together the departments in function of their health performance, rather than imposing the traditional classification by geographic regions.

Resultados (Results): The results show that the method which estimates a greater proportion of the explained variance is the polychoric PCA. The analysis of the ECHI indicates that performance of departments varies by components. There is no department that is at the top of the indicator, which at the same time is at the top in all five components. For instance, Bogotá which is in the first position in the global indicator is ranked 15 over 33 for nutrition. We have also found heterogeneity within each geographical region. Regarding temporal variation, the gap between departments has not closed over time, i.e. the departments that provide better/worse health to their children in 2005 perform similarly in 2010. After allowing departments to be clustered according to the five components, we found that clusters which perform well in all components are located in the centre of the country. In contrast, the groups of departments that are unable to provide good child health are located in the periphery.

Conclusões (Conclusions): The methodological approach employed here -through the construction of a weighted index- facilitates the understanding of the relative status of child health in Colombia. Nevertheless, while child health is a critical dimension of child well-being, is not the only contributing factor. It is necessary to complement the analysis by identifying other dimensions that permit having a more complete vision of child well-being. It is also desirable to identify and incorporate other variables into the analysis of child health, as well as alternative methods of missing data imputation and validation techniques. Given our results identify disparities in early childhood well-being, we hope that this study helps to attract the focus of policy makers toward health care provision for this vulnerable population, and may be used as a criterion for the allocation of public funds.